REMARKS

Claims 1-17 are pending in the present application. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested.

Claims 1 to 7, 11 and 14 -16 have been amended, however no additional material has been added.

The basis for the amendments to claims 1, 7 and 14 may be found in the specification at least on page 7 lines 19 to 21 as well as in claims 5 and 10 as originally filed.

Claims 2 to 6 have been amended to properly depend from claim 1 using acceptable claim language.

Claims 11 and 15 have been amended to correct informalities as suggested by the examiner.

Claims 14-16 have been amended so as to tie the method step to a particular machine as suggested by the examiner.

The Examiner has rejected the original claims 14 to 17 under 35 U.S.C. § 101. It is the Examiners position that as originally claimed the processes were neither tied to a particular machine nor transforming a particular article. Applicant has amended claims 14, 15 and 16 to emphasize the roles of the detector and decoder in the process. Applicant respectfully submits that claim 17 as originally filed recites at least one step linked to a particular machine, namely a digital micromirror. As amended, the claims positively tie to a particular machine that accomplishes the claimed method steps. For

example, in claim 14, the step of synchronously detecting recites that the detection is

done "at a detector"; binary signals are passed from the detector to a decoder, and the

decoding of the binary signals is done by the decoder. Similar amendments were made

to claim 15. Accordingly, Applicant respectfully submits that claims 14-15, and

dependent claims 16-17 are directed to statutory subject matter. Withdrawal of this

rejection is respectfully requested.

Claims 1-17 have been rejected under 35 U.S.C §102(b) as being

anticipated by Huang et al US 6,438,272 (Huang). Applicant respectfully traverses this

rejection.

Huang describes a method and apparatus for 3D scanning which is

different from the currently claimed invention. In particular, Huang (col. 12, lines 27-42)

describes a system in which the optical retrieval device retrieves a reflected optical

fringe pattern and transfers the reflections **unprocessed** to an image generator.

Huang describes detectors which detect multiple bit data for each pixel of

the reflection:

> *Preferably, the optical retrieval device 20 is a three-CCD color video
> camera providing high resolution because each CCD can be dedicated to
> one color channel. (*Huang col. 12 line 29-31)

Furthermore, Huang does not describe any processing of the retrieved

reflections before being transferred to the image generator. Rather, the retrieved

reflections are transferred to the image generator directly:

> *The reflections retrieved by the camera were transferred to an image
> generator 22 using Kodak's Easy Picture software.* (Huang col. 12 line 40-
> 42)

Thus in the Huang's 3D scanner, a CCD, or other non-binary detector, detects grayscale pixels and, without further processing, **multiple bit** data is transferred from the detector to the image processor.

As currently amended, however, claim 1 recites a three dimensional scanning device wherein the detector is configured to pass a **single bit** of data to said decoder per pixel of the detected image. Applicant submits that, as currently amended, the claimed invention is not anticipated by and is therefore patentable over Huang.

Similarly, the applicant submits that claims 2 to 6, which are dependent upon the amended claim 1, are now patentable over Huang.

Regarding claim 7, as currently amended the claimed method includes the step of passing a **single bit** of data to a decoder for each pixel of the reflection. As explained above, in Huang's system, retrieved images are transferred to the image generator as **multiple bit** data. Therefore, Applicant submits that claim 7 is not anticipated by and is patentable over Huang.

Similarly, Applicant submits that claims 7 to 10, which are dependent upon the amended claim 7, are now patentable over Huang.

Regarding claim 11, the Examiner rejected the claim as being anticipated by Huang. Applicant respectfully disagrees.

The invention claimed in claim 11 comprises four elements: 1) a beam source; 2) a digital light binary signal encoding unit; 3) a detector for detecting reflections **as binary data;** and 4) a **binary** decoder.

Against claim 11, Examiner cites Huang, fig. 1 item 16 and 22 and the whole of the flowchart of fig. 2. These references describe a system and method for encoding a beam source with a fringe pattern. These references do not relate to the detection of the reflected image.

In particular at least two of the elements of claim 11, namely a detector for detecting reflection as binary data and a binary decoder, are not described by Huang. As explained above, Huang describes detectors which detect multiple bit data for each pixel of the reflection and transfer the multiple bit data to an image generator. The invention currently defined by claim 11 therefore includes at least two elements not anticipated by Huang. Applicant therefore respectfully submits that claim 11 is patentable over Huang.

Similarly, Applicant submits that claims 12 and 13, which are dependent upon claim 11, are patentable over Huang.

Regarding claim 14, as currently amended the claimed method includes the step of passing binary signals from said detector to a decoder. As explained above, in Huang's system, retrieved images are transferred from the detector to the image generator as multiple bit data. Therefore Applicant submits that claim 14, in which data is transferred as binary signals, is not anticipated by and is patentable over Huang.

Regarding claim 15, the Examiner rejected the claim as being anticipated by Huang. Applicant respectfully disagrees.

Against claim 15, the Examiner cites Huang column 10, lines 8-24 and 26-35, column 13, lines 65-67, column 14, lines 1-8 and column 14, lines 13-24. All of

these references relate to the generation of a fringe pattern used to modulate the light projected onto the object. The references do not relate to the detection of the image reflected from the object.

In particular, as explained above, Huang describes detectors which detect **multiple bit** data for each pixel of the reflection. Therefore, Huang does not anticipate at least the following steps of claim 15 which all relate to **binary** detection:

> *calculating a mid level between said light frame **detection level** and said dark frame **detection level**;*
> *setting said mid level as a **detection threshold** at said detector; and*
> *detecting said successive frames at said detector using said detection threshold, thereby to provide **binary detection** of said structured light signal;*

Similarly, Applicant submits that claims 16 and 17, which are dependent upon the claim 15, are also patentable over Huang.

For all of the above reasons, Applicant submits amended claims that are in proper form and now define patentability and inventive step over the prior art. Therefore, the rejection under § 102(b) should be withdrawn.

Applicant appreciates the indication of allowable subject matter.

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant(s)

By   /Ronni S. Jillions/
     Ronni S. Jillions
     Registration No. 31,979

RSJ:me
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\G\golg\Kimmel1\Pto\2010-01-17Amendment.doc